



LIEBHERR

OIL ANALYSIS REPORT

| | |
|-----------------|-----------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | ATTENTION |



Machine Id
LIEBHERR LH80M 1218-157090
Component
Front Left Wheel Hub
Fluid
GEAR OIL SAE 80W90 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|----------|
| Sample Number | | Client Info | | LH0282876 | LH0282898 | --- |
| Sample Date | | Client Info | | 18 May 2024 | 19 Mar 2024 | --- |
| Machine Age | hrs | Client Info | | 1559 | 545 | --- |
| Oil Age | hrs | Client Info | | 0 | 0 | --- |
| Filter Age | hrs | Client Info | | 0 | 0 | --- |
| Oil Changed | | Client Info | | Not Changd | Not Changd | --- |
| Filter Changed | | Client Info | | N/A | None | --- |
| Sample Status | | | | ATTENTION | NORMAL | --- |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|-------|-----|
| Iron | ppm | ASTM D5185m | >650 | 329 | 113 | --- |
| Chromium | ppm | ASTM D5185m | >4 | 2 | <1 | --- |
| Nickel | ppm | ASTM D5185m | >4 | <1 | <1 | --- |
| Titanium | ppm | ASTM D5185m | >4 | <1 | <1 | --- |
| Silver | ppm | ASTM D5185m | | <1 | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >25 | 2 | 3 | --- |
| Lead | ppm | ASTM D5185m | >4 | 0 | 0 | --- |
| Copper | ppm | ASTM D5185m | >60 | 11 | 6 | --- |
| Tin | ppm | ASTM D5185m | >4 | 0 | 1 | --- |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | --- |
| White Metal | scalar | *Visual | NONE | NONE | MODER | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | --- |

CONTAMINATION

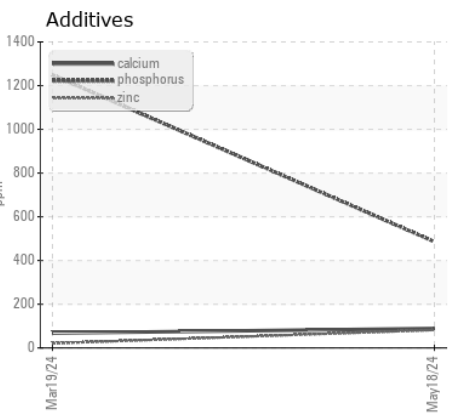
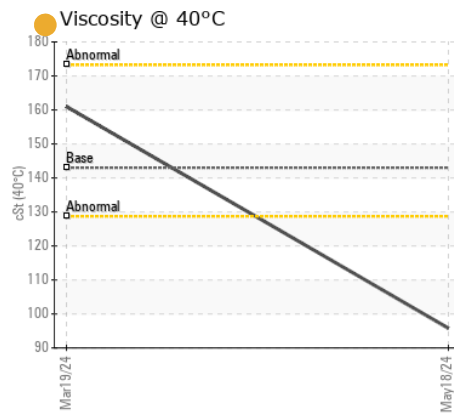
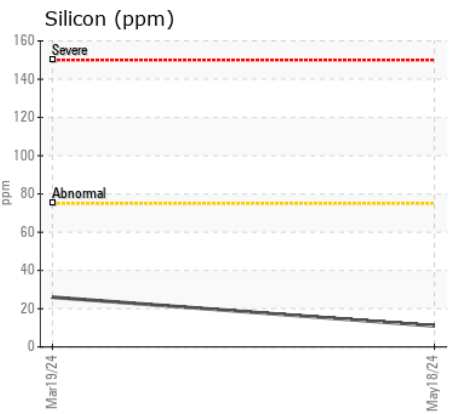
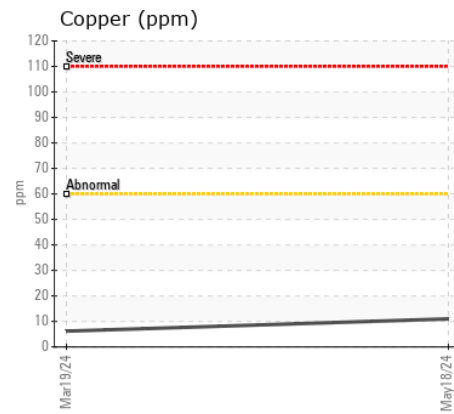
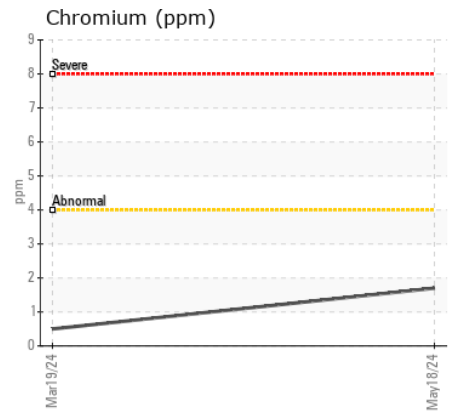
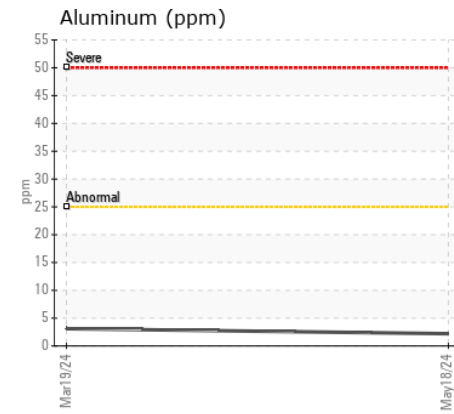
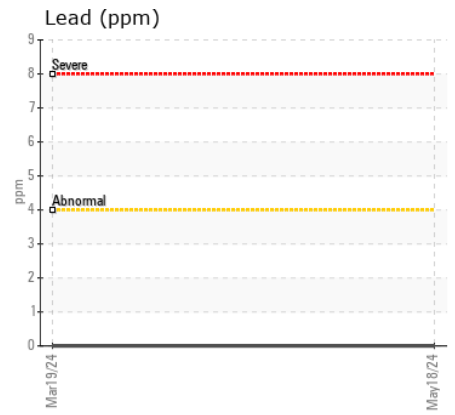
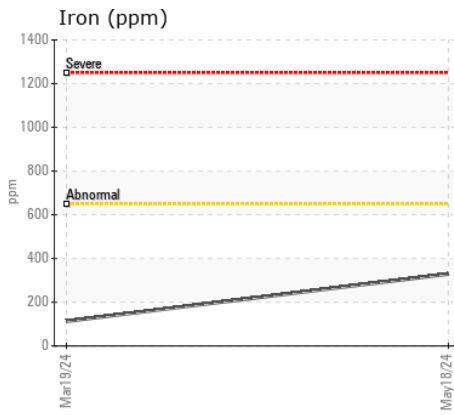
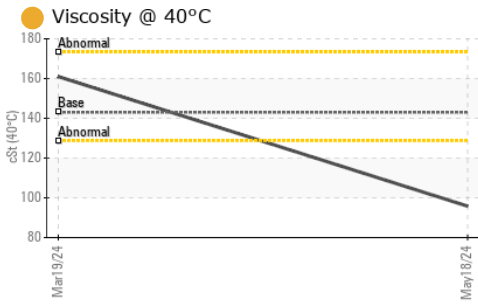
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|--------|-------------|-------|--------------|-------|-----|
| Silicon | ppm | ASTM D5185m | >75 | 11 | 26 | --- |
| Potassium | ppm | ASTM D5185m | >20 | 2 | <1 | --- |
| Water | | WC Method | >0.2 | NEG | NEG | --- |
| Silt | scalar | *Visual | NONE | NONE | NONE | --- |
| Debris | scalar | *Visual | NONE | NONE | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | --- |
| Appearance | scalar | *Visual | NORML | NORML | NORML | --- |
| Odor | scalar | *Visual | NORML | NORML | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | --- |

FLUID CONDITION

The oil viscosity is lower than normal. Confirm oil type.

| | | | | | | |
|-------------|-----|-------------|-------|--------------|-------|-----|
| Sodium | ppm | ASTM D5185m | >170 | 5 | 8 | --- |
| Boron | ppm | ASTM D5185m | 400 | 5 | <1 | --- |
| Barium | ppm | ASTM D5185m | 200 | 0 | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 12 | 3 | <1 | --- |
| Manganese | ppm | ASTM D5185m | | 3 | 2 | --- |
| Magnesium | ppm | ASTM D5185m | 12 | 15 | 0 | --- |
| Calcium | ppm | ASTM D5185m | 150 | 89 | 68 | --- |
| Phosphorus | ppm | ASTM D5185m | 1650 | 486 | 1249 | --- |
| Zinc | ppm | ASTM D5185m | 125 | 82 | 21 | --- |
| Sulfur | ppm | ASTM D5185m | 22500 | 14321 | 22417 | --- |
| Visc @ 40°C | cSt | ASTM D445 | 143 | 95.8 | 161 | --- |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LH0282876

Lab Number : 06192596

Unique Number : 11049348

Test Package : MOBCE

Received : 28 May 2024

Tested : 29 May 2024

Diagnosed : 30 May 2024 - Don Baldrige

KINDER MORGAN

4301 IVERSON

TRINITY, AL

US 35601

Contact: RICKY JOHNSON

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To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)